Customer No.: 31561
Docket No.: 13137-US-PA
Application No.: 10/710,844

REMARKS

Claim Rejections – 35 U.S.C. § 103

The Office Action rejected claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Zhang US 6,855,954 in view of Lee 6,482,781.

In response to the rejection to claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Zhang US '954 in view of Lee '781, Applicant hereby otherwise traverses this rejection. As such, Applicant submits that claims 1-4 are now in condition for allowance.

With respect to claim 1, as originally filed, recites in parts:

A low-temperature polysilicon thin film transistor ..., comprising:

... a patterned silicon layer disposed on the gate dielectric layer and over the gate, wherein the patterned silicon layer comprises **a polysilicon channel region** and **an amorphous silicon hot carrier restrain region** adjacent thereto ... (Emphasis added)

Applicant submits that neither Zhang '954, nor Lee '721 teaches, discloses or suggests "a patterned silicon layer comprising **a polysilicon channel region** and **an amorphous silicon hot carrier restrain region** adjacent thereto ... (Emphasis added)"

required by the present invention as set forth in claim 1. Applicant notes that the Examiner admits that "Zhang '954 fails to disclose the required configuration where the central portion of the channel semiconductor layer is polysilicon and the side portions are amorphous" (Paragraph 2, Page 2 of the instant Office Action). Then the Examiner cites Lee '721 as a second reference to modify Zhang '954 to render the present invention as set forth in claim 1 an obvious case. However, although Lee '721 teaches "when a voltage is applied to both terminals of the substrate 100, polysilicon crystals 160 are grown at the exposed portion 150 of the amorphous silicon layer 113" (FIG. 9; Column 5, lines 36-40), the polysilicon crystals 160 and the amorphous silicon layer 113 are only temporarily coexisted during a step of "a method for crystallizing polysilicon" (Column 3, lines 6 and 7). As Lee '721 further teaches "the amorphous silicon layer 113 is then etched, and only the polysilicon layer 160 remains (FIG. 10; Column 5, lines 44 and 45)". Applicant submits that such a process taught by Lee '721 does not read on "the required configuration where the central portion of the channel semiconductor layer is polysilicon and the side portions are amorphous" as alleged by the Examiner. Therefore, while neither Zhang '954, nor Lee '721 teaches, discloses or suggests such a required "configuration where the central portion of the channel semiconductor layer is polysilicon and the side portions are amorphous" as set forth in claim 1, claim 1 is submitted to be novel and unobvious over Zhang '954 and Lee '721, and should be allowable. MPEP §2143.03

Further, it has been held that "the proposed modification cannot render the prior art

unsatisfactory for its intended purpose" and "the proposed modification cannot change the principle of operation of a reference" (MPEP §2143.01). Lee '721 teaches a step of etching all of the amorphous silicon layer away, it intends to manufacture a polysilicon layer without any amorphous silicon layer remained (Column 5, lines 44 and 45; and Column 6, line 8). Therefore, the proposed modification with an amorphous silicon portion renders Lee '721 unsatisfactory for its intended purpose, and basically destroys a principle of operation of Lee '721. Therefore, Applicant submits that Zhang '954 and Lee '721 cannot be combined to render the present invention, as set forth in claim 1, a *prima facie* obvious case. Accordingly, Applicant further submits that the present invention as set forth in claim 1, as originally filed, is novel and unobvious over Zhang '954 and Lee '721, or any of the other cited references, taken alone or in combination, and should be allowed.

Claims 2-4 depend from claim 1, and if claim 1 is allowable, claim 2-4 should be also allowable.

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CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-4 are in proper condition for allowance and an action to such effect is earnestly solicited. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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